The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A whole-body radio frequency (RF) coil assembly for a very high field Magnetic Resonance Imaging (MRI) system comprising:

a plurality of conductors arranged cylindrically and disposed about a patient bore tube of the MRI system, said conductors of a selected length and having a width selected for said RF coil assembly to resonate at substantially high frequencies and to minimize conductor inductance; and,

a plurality of capacitive elements for electrically interconnecting said plurality of conductors at respective ends of said conductors;

wherein said conductors and capacitive elements form a conductive loop for producing an RF field in the MRI system for imaging.

2. (original) The RF coil assembly of claim 1 wherein the width of the conductors is selected in accordance with:

$$w_{\max} = 2\pi * A / N$$

where w_{max} is the maximum width, A is the outer diameter radius of said patient bore tube and N is the number of said conductors.

3. (original) The RF coil assembly of claim 1 wherein said substantially high frequencies occurs in a range between about 64MHz to about 500 MHz.

4. (original) The RF coil assembly of claim 2 wherein said width is about 7.9 cm, and said number of conductors is 16.

5. (original) The RF coil assembly of claim 1 wherein said very high field MRI system produces a magnetic field of about 3 Tesla (3 T).

6. (original) The RF coil assembly of claim 1 wherein said plurality of conductors have a selectable length.

7. (original) The RF coil assembly of claim 6 wherein said selectable length is about 55 cm.

8. (original) The RF coil assembly of claim 1 wherein said capacitive elements are low inductance ring capacitors.

9. (original) The RF coil assembly of claim 1 wherein said conductors further include segmented slots for reducing eddy currents induced by gradient coils of said MRI system.

10. (original) The RF coil assembly of claim 1 further comprising a plurality of gaps disposed between said conductors.

11. (currently amended) A very high field Magnetic Resonance Imaging (MRI) system comprising:

a whole-body radio frequency (RF) coil assembly adapted to resonate at substantially high frequencies, the RF coil assembly having a plurality of conductors of selected length and selected width to minimize inductance, said RF coil assembly comprising:

a plurality of conductors arranged cylindrically and disposed about a patient bore tube of the MRI system, said conductors having a width selected for said RF coil assembly to resonate at substantially high frequencies; and,

a plurality of capacitive elements for electrically interconnecting said plurality of conductors at respective ends of said conductors, wherein said conductors and capacitive elements form a conductive loop for producing an RF field in the MRI system for imaging;

a RF coil shield assembly adapted to further reduce the inductance of the conductors contained within the RF coil assembly; and,

a RF drive cable assembly adapted to electrically connect to the RF coil assembly.

12. (original) The MRI system of claim 11 wherein said substantially high frequencies occur in a range of about 64 MHz and about 500 MHz.

13. (original) The MRI system of claim 11 wherein said very high field MRI system produces a magnetic field of about 3 Tesla (3 T).

14. (canceled)

15. (original) The MRI system of claim 11 wherein said plurality of conductors and plurality of capacitive elements are adapted to form a band pass RF coil assembly configuration.

16. (original) The MRI system of claim 11 wherein said plurality of conductors and plurality of capacitive elements are adapted to form a low pass RF coil assembly configuration.

17. (original) The MRI system of claim 11 wherein said plurality of conductors and plurality of capacitive elements form a high pass RF coil assembly configuration.